

AMENDMENT UNDER 37 C.F.R. § 1.111
USSN: 09/357,990

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claims 1-3 (canceled).

4. (currently amended): ~~The semiconductor chip as claimed in claim 3, A~~

semiconductor chip comprising:

a plurality of first elements each of which diagnoses itself; and

a second element which inputs diagnosis results from said first elements and determines

whether or not there is a faulty first element in said first elements;

third elements which correspond to pins of said first element, each of which inputs said

diagnosis results from same pins of said first elements, respectively, and each of which

determine a minority one of said first elements based on said diagnosis results;

fourth elements which correspond to said first elements and which determine whether or

not the corresponding first element fails based on outputs from said third elements; and

wherein said second element further includes a fifth element which outputs information about a faulty first element to said first elements.

5. (currently amended): The semiconductor chip as claimed in claim 4, further

comprising a memory element which stores a program for diagnosing said first elements.

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6. (currently amended): The semiconductor chip as claimed in claim ~~1~~ 4, further comprising a sixth element which cannot diagnose itself.

7. (original): The semiconductor chip as claimed in claim 6, wherein said sixth element is selected from a group consisting of a main memory, a main memory controller, and a processor which controls input and output process.

8. (currently amended): The semiconductor chip as claimed in claim ~~1~~ 4, further comprising an external input which input a diagnosis program; and

C) a seventh element which selects to load a diagnosis program from said memory element or said external input.

9. (original): The semiconductor chip as claimed in claim 8, further comprising a register which stores information indicating which of a diagnosis program from said memory element or said external input said seventh element selects.

10. (currently amended): The semiconductor chip as claimed in claim ~~1~~ 4, further comprising an eighth element which selects, as a trigger, a first signal set by a user or a second signal from a semiconductor chip which controls start up.

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11. (original): The semiconductor chip as claimed in claim 10, further comprising a register which stores information indicating which of said first or second signal said eighth element selects.

Claim 12-14 (canceled).

15. (currently amended): ~~The method as claimed in claim 14,~~ ^{102 (a)} A method which is ^{5812, 757}
performed in a semiconductor chip including a plurality of first elements, comprising:
diagnosing said first elements each by itself; and ^{) col. 26, ln 49-59}
determining whether or not there is a faulty first element in said first elements based on
diagnosis results from said first elements. ^{) col 26. ln 60-63}
outputting information about a faulty first element to said first elements. ^{) col 50 ln 51-53}

16. (currently amended): The method as claimed in claim ~~12~~ 15, further comprising:
diagnosing a sixth element which cannot diagnose itself.

17. (currently amended): The method as claimed in claim ~~12~~ 15, wherein said semiconductor chip includes a memory element which stores a diagnosis program and an external input;

further comprising:

selecting to load a diagnosis program from said memory elements or said external input.

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18. (currently amended): The method as claimed in claim ~~12~~ 15, further comprising:
selecting, as a trigger, a first signal set by a user or a second signal from a semiconductor chip
which controls start up.

19. (new): A semiconductor chip comprising:
a plurality of CPUs, each of which diagnoses itself using a first diagnosis program;
a diagnosis element which inputs a diagnosis result from said CPUs and determines
whether or not each of the CPUs is normal; and
a plurality of non-CPU to-be-diagnosed elements, each of which is diagnosed by at least
one of said CPUs, which is determined to be normal, using a second diagnosis program.

CA
20. (new): The semiconductor chip as claimed in claim 19, wherein said diagnosis
element determines whether or not each of the CPUs is normal based on majority logic of said
diagnosis results.

21. (new): The semiconductor chip as claimed in claim 19, wherein said diagnosis
element inputs diagnosis results from said CPUs, discriminates each of said diagnosis results into
a majority group or a minority group, and determines said CPUs, whose diagnosis results is in
said majority group, as normal CPUs.

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22. (new): The semiconductor chip as claimed in claim 19, wherein said diagnosis element includes:

majority logic elements which correspond to pins of said CPUs, each of which inputs said diagnosis results from same pins of said CPUs, respectively, and each of which discriminates each of said diagnosis results into a majority group or a minority group; and

decision elements which correspond to said CPUs and which determine said CPU whose diagnosis result is in said majority group as a normal CPU.

23. (new): The semiconductor chip as claimed in claim 22, wherein said diagnosis element further includes an information output element which outputs information about whether each of said CPUs is normal or faulty.

24. (new): The semiconductor chip as claimed in claim 19, further comprising a memory which records said first diagnosis program and said second diagnosis program.

25. (new): The semiconductor chip as claimed in claim 19, further comprising an external input which inputs said first diagnosis program and said second diagnosis program.

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26. (new): The semiconductor chip as claimed in claim 19, further comprising:
a memory which records said first diagnosis program and said second diagnosis program
an external input which inputs said first diagnosis program;
and said second diagnosis program, and
a selector which selects said first diagnosis program and said second diagnosis program
from the memory or the external input according to an instruction.

27. (new): The semiconductor chip as claimed in claim 19, wherein each of said
CPUs starts to diagnosis itself when it receives a trigger signal from a system control section.

C/ 28. (new): The semiconductor chip as claimed in claim 19, wherein each of said
CPUs starts to diagnosis itself when it receives a trigger signal from a user.

29. (new): The semiconductor chip as claimed in claim 19, further comprising a
selector which selects a signal to start diagnosis of said CPUs from a trigger signal from a system
control section or a trigger signal from a user.

30. (new): A method which is performed in a semiconductor chip including a
plurality of CPUs and a plurality of non-CPU to-be-diagnosed elements, comprising:
diagnosing said CPUs each by itself;
determining whether or not each of the CPUs is normal; and

diagnosing said non-CPU to-be-diagnosed elements using a CPU which is determined to be a normal CPU.

31. (new): A semiconductor chip comprising:
a plurality of CPUs, each of which diagnoses itself using a first diagnosis program;
a diagnosis element which inputs a diagnosis result from said CPUs and determines whether or not each of the CPUs is normal; and
a plurality of non-CPU to-be-diagnosed elements, each of which is diagnosed by a group of said plurality of said CPUs, which are determined to be normal, using a second diagnosis program.

CA 32. (new): A semiconductor chip comprising:
a plurality of first elements, each of which diagnoses itself using a first diagnosis program;
a diagnosis element which inputs a diagnosis result from said first elements and determines whether or not each of the first elements is normal; and
a plurality of second elements, each of which is diagnosed by at least one of said first elements, which is determined to be normal, using a second diagnosis program.

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33. (new): A semiconductor chip comprising:

a plurality of first elements, each of which diagnoses itself using a first diagnosis
program;

a diagnosis element which inputs a diagnosis result from said first elements and
determines whether or not each of the first elements is normal; and

a plurality of second elements, each of which is diagnosed by a group of said plurality of
said first elements, which are determined to be normal, using a second diagnosis program.
